

Advisory Panel for the Environmental Economics Research Strategy
EPA Science Advisory Board
November 12, 2003

The EPA Science Advisory Board Staff Office announced in a Federal Register Notice (68 FR 37151, June 23, 2003) that the SAB would conduct a review of the EPA *Environmental Economics Research Strategy* using the Environmental Economics Advisory Committee (EEAC) as the core of a panel to which will be added experts from the membership of other EPA advisory committees and/or from nominations received from the public in response to that *Federal Register* notice. The notice requested nominations for consultant panel members to provide additional expertise to the EEAC. Background information on the project and details on the nomination process appeared in the cited notice. The notice is available on the SAB Website at www.epa.gov/sab/. The Biographical Sketches for persons on the Short List for Panel Membership was published on the SAB Website on October 7, 2003 requesting comments and information relevant to their participation in this review. The comment period closed on October 28, 2003. No comments were received. After consideration of each individual's availability, expertise, and relation to the subject of the review, the SAB Staff Office Director, in consultation with SAB leadership, determined that the following persons would be on the review Panel.

Dr. Maureen L. Cropper: Chair

Maureen L. Cropper, (Chair) serves as the Principal Economist in the Policy Research Department of The World Bank and Professor of Economics at the University of Maryland. Dr. Cropper's research areas include the economics of human health, environmental, natural resource and urban issues. Specific projects she has worked on have addressed topics such as valuing the health benefits of environmental programs and the study of the political economy of environmental regulation. Dr. Cropper has served as the Chair of the EPA SAB Advisory Council on Clean Air Compliance Analysis and as Chair of the EPA SAB Ad hoc Arsenic Benefits Review Panel. Dr. Cropper received her Ph.D. in Economics from Cornell University.

Dr. Dallas Burtraw

Dallas Burtraw is a Senior Fellow at Resources for the Future. He holds a Ph.D. in Economics and a Master in Public Policy from the University of Michigan. Dr. Burtraw's areas of expertise include: air pollution, cost-benefit analysis, electricity restructuring, regulatory design, and public finance. His research interests include the restructuring of the electric utility market, the social costs of environmental pollution, benefit-cost analyses of environmental regulation, and the design of incentive-based environmental policies. Recently, Dr. Burtraw analyzed the cost-effectiveness of various designs for NO_x emission trading in the eastern states and of the design for a carbon emission trading program in the electricity sector. He also investigated the effects on electric utilities of the sulfur dioxide emissions-permit trading program legislated under the 1990 Amendments to the Clean Air Act, and evaluated the benefits

of emission reductions resulting from the 1990 Amendments. Dr. Burtraw's current activities include service on the National Research Council, Committee on Air Quality Management in the United States and serving as a reviewer, National Energy Modeling System, Energy Information Administration, 1992-present. His current projects include the study of integrated approaches to pollutant control in the electricity sector and the valuation of natural resource improvements in the Adirondacks.

Dr. Burtraw's research support for activities at Resources for the Future include the State of Maryland, the Environmental Protection Agency, the Department of Energy. Recent activities outside Resources for the Future include consulting for Analysis Group/Economics and Americans for Equitable Climate Solution.

Dr. Lawrence H. Goulder

Lawrence H. Goulder is the Shuzo Nishihara Professor in Environmental and Resource Economics at Stanford University. He is also a Senior Fellow of Stanford's Institute for International Studies and Institute for Economic Policy Research, a Research Associate at the National Bureau of Economic Research, and a University Fellow of Resources for the Future. Dr. Goulder graduated from Harvard College with an A.B. in philosophy in 1973. He obtained a master's degree in musical composition from the Ecole Normale de Musique de Paris in 1975 and earned a Ph.D. in economics from Stanford in 1982. He was a faculty member in the Department of Economics at Harvard before returning to Stanford's economics department in 1989.

Dr. Goulder's research examines the environmental and economic impacts of U.S. and international environmental policies. He has focused on policies to reduce emissions of "greenhouse gases" that contribute to climate change, and on "green tax reform" – revamping the tax system to introduce taxes on pollution and reduce taxes on labor effort or investment. To analyze environmental policies Dr. Goulder often employs a general equilibrium analytical framework that integrates the economy and the environment and links the activities of government, industry, and households. His work considers both the aggregate benefits and costs of various policies as well as the distribution of policy impacts across industries, income groups, and generations. Some of his work is interdisciplinary, involving collaborations with climatologists and biologists. Dr. Goulder has conducted analyses for several government agencies and environmental organizations.

Dr. Goulder's research support sources have included the National Science Foundation, the U.S. Environmental Protection Agency, the U.S. Department of Energy, the William and Flora Hewlett Foundation, the Pew Center on Global Climate Change, and Resources for the Future.

Dr. James Hammitt:

James K. Hammitt is Professor of Economics and Decision Sciences at the Harvard Center for Risk Analysis. He holds appointments in the Department of Health Policy and Management and the Department of Environmental Health and is co-director of the Program in Environmental Science and Risk Management at the Harvard School of Public Health. His research interests include the development and application of quantitative methods of decision and risk analysis to health and environmental policy. Professor Hammitt studies the management of long-term environmental issues with important scientific uncertainties such as global climate change and stratospheric-ozone depletion, the evaluation of ancillary benefits and countervailing risks associated with risk-control measures, and the characterization of social preferences over health and environmental risks using revealed-preference and contingent-valuation methods. He holds degrees in Applied Mathematics (A.B., Sc.M.) and Public Policy (M.P.P., Ph.D.) from Harvard University. He serves as a member of the U.S. Environmental Protection Agency's Advisory Council on Clear Air Compliance Analysis and the American Statistical Association Committee on Energy Statistics (Advisory Committee to the U.S. Energy Information Administration), and is a member of the American Economic Association, Association of Environmental and Resource Economists, European Group of Risk and Insurance Economists (Geneva Association), and the Society for Risk Analysis. Prior to coming to Harvard, he was Senior Mathematician at the RAND Corporation in Santa Monica.

Dr. Gloria E. Helfand

Dr. Helfand has been an Associate Professor of Environmental Economics in the School of Natural Resources and Environment (SNRE) at the University of Michigan (UM) since 1996. There she has taught undergraduate and graduate courses in environmental and resource economics and environmental policy analysis. She is a member of the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency's Science Advisory Board, an Associate Editor of the American Journal of Agricultural Economics and Land Economics, and she is stepping down due to sabbatical leave from her memberships in SNRE's Executive Committee, the Advisory Committee for the Program in the Environment, and the Executive Committee for the Corporate Environmental Management Program at UM.

Dr. Helfand holds a bachelor's degree in English Literature from Swarthmore College, a master's degree in Technology and Human Affairs from Washington University, and a Ph.D. in Agricultural and Resource Economics from the University of California at Berkeley. Prior to coming to the University of Michigan, she was an Assistant and Associate Professor of Agricultural Economics at the University of California at Davis. Dr. Helfand previously conducted economic and policy analysis on public lands issues, with an emphasis on national forest management, in the Economic Policy Department of The Wilderness Society, and she conducted research, analysis, and advocacy on national forest management and floodplain management issues for the Natural Resources Defense Council.

Dr. Helfand's expertise is in the area of understanding the effects of different regulatory approaches to pollution policy, environmental policy analysis, environmental justice, and non-point source pollution policy. She has published articles in such journals as the *American Journal of Agricultural Economics*, the *American Economic Review*, the *Journal of Environmental Economics and Management*, and *Social Science Quarterly*, and she is co-author (with John Loomis) of *Environmental Policy Analysis for Decision-Making*, published by Kluwer Academic Press.

Dr. Helfand's research support has come from the University of California at Davis (UCD), the UCD Institute of Transportation Studies, the University of California Water Resources center, the California State Water Resources Control Board, the U.S. Environmental Protection Agency, the University wide (University of California) Energy Research Group, the University of California Division of Agricultural and Natural Resources, the University of California Giannini Foundation of Agricultural Economics, and the National Science Foundation.

Dr. Catherine Kling

Dr. Catherine Kling is a Professor of Economics at Iowa State University and Head of the Resource and Environmental Policy Division of the Center for Agricultural and Rural Development at ISU. Prior to coming to Iowa State University in 1993, she was an Associate and Assistant Professor in the Department of Agricultural Economics at the University of California, Davis. She has taught graduate and undergraduate courses in environmental economics, microeconomic theory, and econometrics. Dr. Kling's research encompasses nonmarket valuation issues in environmental economics and economic incentives for pollution control related especially to agricultural problems. Her research has been published in a variety of economics journals including *The Review of Economics and Statistics*, *Journal of Public Economics*, *Journal of Environmental Economics and Management*, *American Journal of Agricultural Economics*, *Land Economics*, *Environmental and Resource Economics*, and *Ecological Economics*.

Dr. Kling has also served the profession and the public sector in a variety of capacities including membership on EPA's Environmental Economics Advisory Committee to the Science Advisory Board. Current and past service includes the member of the board of directors and awards committee chair for the American Agricultural Economics Association, vice president and member of the board of directors of the Association of Environmental and Resource Economists, associate editor for the *American Journal of Agricultural Economics*, and the *Journal of Environmental Economics and Management*, as well as numerous ad hoc committees for the AAEA, AERE, and other professional associations.

Dr. Kling's research support has been provided through grants from the Iowa Department of Natural Resources, the Environmental Protection Agency, the U.S. Department of

Agriculture, the California Institute for Energy Efficiency, the Giannini Foundation, and the Sloan Foundation.

Dr. Arik Levinson:

Arik Levinson is an Associate Professor in the Economics Department of Georgetown University, where he teaches environmental economics, public finance, and microeconomics, and is Director of Undergraduate Economics. Professor Levinson is also a Faculty Research Fellow at the National Bureau of Economic Research, and is on the Editorial Council of the *Journal of Environmental Economics and Management*. He is a member of the American Economic Association, the Association of Environmental and Resource Economists, and the Association for Public Policy Analysis and Management.

Most of Dr. Levinson's research involves the fields of traditional public finance and environmental economics. He has studied the welfare consequences of states competing to attract manufacturers by enacting successively less stringent environmental standards (a "race to the bottom"), and measured empirically the effects of interstate differences in standard stringency on manufacturer location decisions, trade, employment, and foreign direct investment. He received his PhD in Economics from Columbia University in 1993.

Professor Levinson has recently completed a research project funded by the National Science Foundation, joint with Scott Taylor at the University of Wisconsin, studying theoretical and empirical relationships between economic growth and pollution, as well as a project under contract to the EPA entitled "An Empirical Investigation of the Pollution Haven Hypothesis," with Smita Brunnermeier of Research Triangle Institute. Dr. Levinson holds a B.A. in Economics from Harvard College, and a Ph.D. in Economics from Columbia University.

Dr. Richard B. Norgaard

Richard B. Norgaard is Professor of Energy and Resources and of Agricultural and Resource Economics at the University of California at Berkeley. He holds a PhD in Economics from the University of Chicago (1971), an MS in Agricultural Economics with a minor in water resources engineering from Oregon State University (1967), and an AB in Economics from the University of California at Berkeley (1965).

Professor Norgaard currently contributes to the fields of environmental epistemology (supported by an NSF Biocomplexity Grant), ecological economics, and neoclassical environmental economics. His research currently addresses how we understand complex, global issues with additional work being undertaken in the area of trade and the environment. His research over three decades has been wide ranging and has appeared in the journals and books of a number of disciplines beyond economics. He is the author of *Development Betrayed: The End of Progress and a Coevolutionary Revisioning of the Future* (Routledge, London, 1994) and co-

author or editor of three additional books. Professor Norgaard was a Project Specialist with the Ford Foundation in Brazil (1978 and 79) where he worked on the environmental problems of Amazon development. Among a variety of professional assignments around the world, he served on a UNDP economic assessment team in Vietnam (1989) and as a visiting scholar at the World Bank (1991).

Professor Norgaard currently holds the office of Past President of the International Society for Ecological Economics (2002-3) after serving as its President (1998-2001). He also serves on the Board of Directors of the American Institute of Biological Sciences, on the Board of Directors of Redefining Progress, an NGO he co-founded, and on the Board of Directors of EcoEquity. He has served (1992-98) on the U.S. Committee of the Scientific Committee on Problems of the Environment (SCOPE) and numerous committees of the National Research Council and former Office of Technology Assessment. Professor Norgaard's current research funding comes from the National Science Foundation and from the Agricultural Experiment Station, directly through the university.

Dr. Kathleen Segerson:

Kathleen Segerson is Professor and Head in the Department of Economics at the University of Connecticut. Prior to coming to the University of Connecticut, she was on the faculty at the University of Wisconsin. She is currently serving on the National Research Council (NRC) committee on Assessing and Valuing the Services of Aquatic and Related Terrestrial Ecosystems, and served recently on the NRC committee on the Causes and Management of Coastal Eutrophication. Dr. Segerson has also been active in professional service. She is currently a co-editor of the *Ashgate Studies in Environmental and Natural Resource Economics*, and a member of the editorial boards of the *International Yearbook of Environmental and Resource Economics* and *Contemporary Economic Policy*. She has previously served as a co-editor and an associate editor of the *American Journal of Agricultural Economics* and an associate editor of the *Journal of Environmental Economics and Management*. She was Vice-President and a member of the Board of Directors of the Association of Environmental and Resource Economists (AERE), and has served on several subcommittees for AERE and the American Agricultural Economics Association (AAEA). She is also currently a member of the Foundation Board for the American Agricultural Economics Association Foundation.

Dr. Segerson's research focuses on the incentive effects of alternative environmental policy instruments, with particular emphasis on the application of legal rules and principles to environmental problems. Specific research areas include: the impact of legal liability for environmental damages in a variety of contexts, including groundwater contamination, hazardous waste management, and workplace accidents; land use regulation and the takings clause; voluntary approaches to environmental protection; the impacts of climate change on U.S. agriculture; and incentives to control nonpoint pollution from agriculture. Dr. Segerson received

a BA degree in mathematics from Dartmouth College in 1977 and a PhD in agricultural and natural resource economics from Cornell University in 1984.

Dr. Hilary Sigman

Hilary Sigman is an associate professor of economics at Rutgers University in New Brunswick and a faculty research fellow of the National Bureau of Economic Research. In Spring 2002, she is a visiting associate professor at the University of Michigan's Ford School of Public Policy. She currently serves on the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency's Science Advisory Board and the Editorial Council of the *Journal of Environmental Economics and Management*. She holds a B.A. in economics and Studies in the Environment from Yale College, an M.Phil. in economics from Cambridge University (U.K), and a Ph.D. in economics from the Massachusetts Institute of Technology. She was previously an associate professor of environmental economics at Yale, an assistant professor of economics at the University of California, Los Angeles, a Gilbert White Fellow at Resources for the Future, and a visiting fellow at the Hoover Institution. Her research examines the empirical effects of environmental policies, including policies for hazardous waste, solid waste, and water pollution. It has appeared in the *RAND Journal of Economics*, *Journal of Environmental Economics and Management*, *Journal of Law and Economics*, *Land Economics*, and *Journal of Legal Studies*, as well as in several books, and is forthcoming in the *American Economic Review*. Her current research on transboundary spillovers and water pollution in rivers is funded by the National Science Foundation. Other research support comes from the U.S. Environmental Protection Agency, University of California, Los Angeles, Woods Hole Oceanographic Institution, and fellowship support from the sources mentioned above.

Dr. Robert N. Stavins

Robert N. Stavins is the Albert Pratt Professor of Business and Government, Faculty Chair of the Environment and Natural Resources Program at the John F. Kennedy School of Government, Harvard University, and Director of the Environmental Economics Program at Harvard University. He is a University Fellow of Resources for the Future, a past member and Chair of the Environmental Economics Advisory Committee of the U.S. Environmental Protection Agency's (EPA) Science Advisory Board, Director of the University-wide Environmental Economics Program at Harvard University; and a Member of: EPA's Clean Air Act Advisory Committee, the Intergovernmental Panel on Climate Change (IPCC), the Board of Directors of the Robert and Renée Belfer Center for Science and International Affairs, the Executive Committee of the Harvard University Committee on Environment (UCE), the Board of Academic Advisors of the AEI-Brookings Joint Center for Regulatory Studies, the Editorial Boards of *The Journal of Environmental Economics and Management*, *Resource and Energy Economics*, *Land Economics*, *Environmental Economics Abstracts*, *B.E. Journals of Economic Analysis & Policy*, and *Economic Issues*. He is also a contributing editor of *Environment*, and was formerly a member of the Board of Directors of the Association of Environmental and

Resource Economists. He holds a B.A. in philosophy from Northwestern University, an M.S. in agricultural economics from Cornell, and a Ph.D. in economics from Harvard.

Professor Stavins' research has focused on diverse areas of environmental economics and policy, including examinations of: policy instrument choice under uncertainty; competitiveness effects of regulation; design and implementation of market-based policy instruments; diffusion of pollution-control technologies; and depletion of forested wetlands. His current research includes analyses of: technology innovation; environmental benefit valuation; political economy of policy instrument choice; and econometric estimation of carbon sequestration costs. His research has appeared in the *American Economic Review*, *Journal of Economic Perspectives*, *Quarterly Journal of Economics*, *Journal of Economic Literature*, *Science*, *Nature*, *Journal of Environmental Economics and Management*, *Ecology Law Quarterly*, *Journal of Risk and Uncertainty*, *Resource and Energy Economics*, *The Energy Journal*, *Energy Policy*, *Annual Review of Energy and the Environment*, *Explorations in Economic History*, *Brookings Papers on Economic Activity*, other scholarly and popular periodicals, and several books. He is the editor of the fourth edition of *Economics of the Environment* (W. W. Norton, 2000), co-editor with Paul Portney of the second edition of *Public Policies for Environmental Protection* (Resources for the Future, 2000), and the author of *Environmental Economics and Public Policy: Selected Papers of Robert N. Stavins, 1988-1999* (Edward Elgar, 2000).

Professor Stavins directed Project 88, a bi-partisan effort co-chaired by former Senator Timothy Wirth and the late Senator John Heinz, to develop innovative approaches to environmental and resource problems. He continues to work closely with public officials on matters of national and international environmental policy. He has been a consultant to the National Academy of Sciences, several Administrations, Members of Congress, environmental advocacy groups, the World Bank, the United Nations, the U.S. Agency for International Development, state and national governments, and private foundations and firms.

Prior to coming to Harvard, Stavins was a staff economist at the Environmental Defense Fund; and before that, he managed irrigation development in the middle east, and spent four years working in agricultural extension in West Africa as a Peace Corps volunteer. Professor Stavins' research support sources have included: the National Science Foundation, the U.S. Department of Energy, the U.S. Department of the Interior, the U.S. Environmental Protection Agency, the Avina Foundation, the Pew Center on Global Climate Change, the W. Alton Jones Foundation, the Pew Charitable Trusts, the Surdna Foundation, the Carnegie Corporation of New York, the Richard King Mellon Foundation, and Resources for the Future."

Dr. Gary Yohe:

Gary Yohe is the John E. Andrus Professor of Economics at Wesleyan University and a collaborator at the Center for Integrated Study of the Human Dimensions of Global Change at Carnegie Mellon University. He received his bachelor's degree in mathematics from the

University of Pennsylvania in 1970 and his PhD in economics from Yale University in 1975. He has contributed over 90 articles to the academic literature, focusing most of his attention over the past decade to climate change. His major research interests now see him applying the first principles of microeconomic analysis to decision-making under uncertainty and to exploring the tradeoff between mitigating climate change and abating its potential damage. Most recently, Yohe has been concerned with judging the vulnerability of economic, political and social systems to climate change, climate variability, and climate policy when adaptation is included in the calculus of cost accounting. These interests have lead to collaborations on coping capacity indicators with Richard Tol, on the global coherence argument for claiming a climate “fingerprint” with Camille Parmesan, and an integrated assessment project for Egypt with Kenneth Strzepek. Yohe served as a lead author for three Chapters of the Working Group II contribution (*Impacts, Adaptation, and Vulnerability*) to the Third Assessment Report (the TAR) of the Intergovernmental Panel on Climate Change (the IPCC): Chapter 2 (Methods and Tools), Chapter 18 (Adaptation to Climate Change in the Context of Sustainable Development and Equity), and Chapter 19 (Synthesis). He also contributed as a lead author for Chapter 1 (Setting the Stage: Climate Change and Sustainable Development) of the contribution of Working Group III (*Mitigation*) to the TAR. He is also currently serving as Convening Lead Author for Chapter 21 (or perhaps 5 after the reorganization – “Uncertainties in Assessing Response Effectiveness”) for the *Response Options Technical Volume* of the Millennium Ecosystem Assessment. He is a member of both the Science Advisory Committee for the Inter-American Institute and the Science Committee of the Global Analysis, Integration and Modeling Program of the IGBP.

Dr. Yohe receives his external funding from the National Science Foundation through its support of the Center for Integrated Study of the Human Dimensions of Global Change at Carnegie Mellon University.